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1st 1965

Declass Review by NGA

U.S. Government
Washington, D.C.

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Subject: Contract [Redacted Box]
Task Order No. 02 (100,677) 65-R

Enclosure: a) Prototype Modulated-Light Film Viewing Tables
Monthly Narrative Report - July 1965, Two (2) copies

Gentlemen:

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[Redacted Box] forwards herewith Enclosure a) in accordance with the reporting requirements under Item 4 of subject contract task order.

By copy of this letter we are forwarding three (3) additional copies of the report to the Technical Representative.

Should you have any questions or desire further information in this matter, please feel free to contact the undersigned.

Very truly yours,

DTC/umt

[Redacted Signature Box]
Contract Representative

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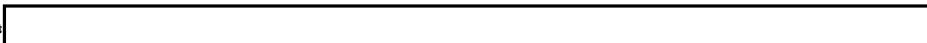
cc: Technical Officer, Three (3) copies

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PROTOTYPE MODULATED-LIGHT FILM VIEWING TABLES

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CONTRACT  TASK ORDER NO. 92(100-677)66-RMonthly Narrative Report - July 1965

This is the first of a series of monthly narrative reports on the development of two prototype modulated-light film viewing tables. With these tables, photographic negatives or transparencies will be illuminated by a fast-moving spot of light whose intensity will be automatically varied to offset large-area contrast compression. This report covers the work performed by the  during the period from 22 June to 22 July 1965. (Report personnel participated in a two-week Division shutdown for vacation beginning 17 July 1965.)

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A. Current Status of Work

The mechanical design of the prototype tables was begun. Completion of this task was originally scheduled for mid-August; however, now some considerations may require a change in this date. Each table will consist essentially of two end racks (linear cabinets; nominally 30 inches high, 22 inches wide, and 25 inches deep) separated by a modulated-light source (provided by a modified  kinescope with a 140-inch radius of curvature) sitting below a film transport housing. The viewing surface (table top) will be tiltable up to 45 degrees and rotatable to ± 180 degrees.

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The mechanical effort has concentrated on three critical areas: tilt and rotation mechanisms, film advance methods, and microscope transport techniques. The investigation in the first area is proceeding satisfactorily. In order to evaluate a proposed film advance scheme, two 1/50-horsepower, drum-wound dc motors and a control box were ordered. (It is recognized that the actual prototype design may have to incorporate larger motors.)

drafting instrument system, and pantograph system. The first, requiring weights for counterbalancing in two directions, is bulky and inherently stiff (with respect to starting force). The drafting instrument system is being investigated with a K & E Autoglide machine (a similar branding machine was found to be inferior). This technique utilizes one-direction counterbalancing but necessitates a microscope carriage riding on the safety glass of the viewing surface. The measured force required to move such a carriage was approximately 9 ounces. The pantograph system operates about a pivot and has the potential for smoothest microscope movement. It may be operated with the microscope mounted as in a carriage. However, mechanical play in the arms poses a big question.

The electrical design and assembly of the prototype circuits were begun; completion of this design task is scheduled for 1 September. The circuits are being assembled on Vocoder-type plugboards using positive-contact Amphenol connectors. Each prototype table will require 17 plugboards (mounted within Elec. Vardak type XX card nests) comprising 95 stages of amplification, wave shaping, and synchronization. This work is progressing ahead of schedule.

B. Problem Areas Encountered

1. An experiment simulating microscope viewing of the film with modulated light (without a light diffuser) revealed bad parallax effects. The separation of the light source from the film is detected by the binocular microscope and emphasized by the stereo feature. It should be noted that the conclusion of a previous investigation of this problem was that parallax would be eliminated only with a microscope incorporating a fiber-optics facoplate.

2. The so-called flat-face kinescope selected for the prototype tables has a metal envelope which is normally operated at electrical potentials greater than 20 kilovolts (above cathode-ground), which poses a safety problem. The feasibility of operating the envelope at ground potential and the other electrodes at negative potentials was investigated. The conclusion was that a satisfactory electrical design would be difficult and costly to produce. The alternative, which is recommended for approval,

C. Finalized Work for End Monthly Report

1. Complete design of tilt and rotation mechanisms.
2. Complete investigation of film advance methods.
3. Complete investigation of microscope transport techniques.
4. Complete electrical circuit design.
5. Complete electrical circuit assembly and checkout.
6. Begin mechanical assembly.
7. Investigate microscope base-shifting, light diffusing, and cover glass artifacts and techniques.

D. Status of Fund Expenditures to End of Monthly Report

Total funds expended to 25 July 1963 -

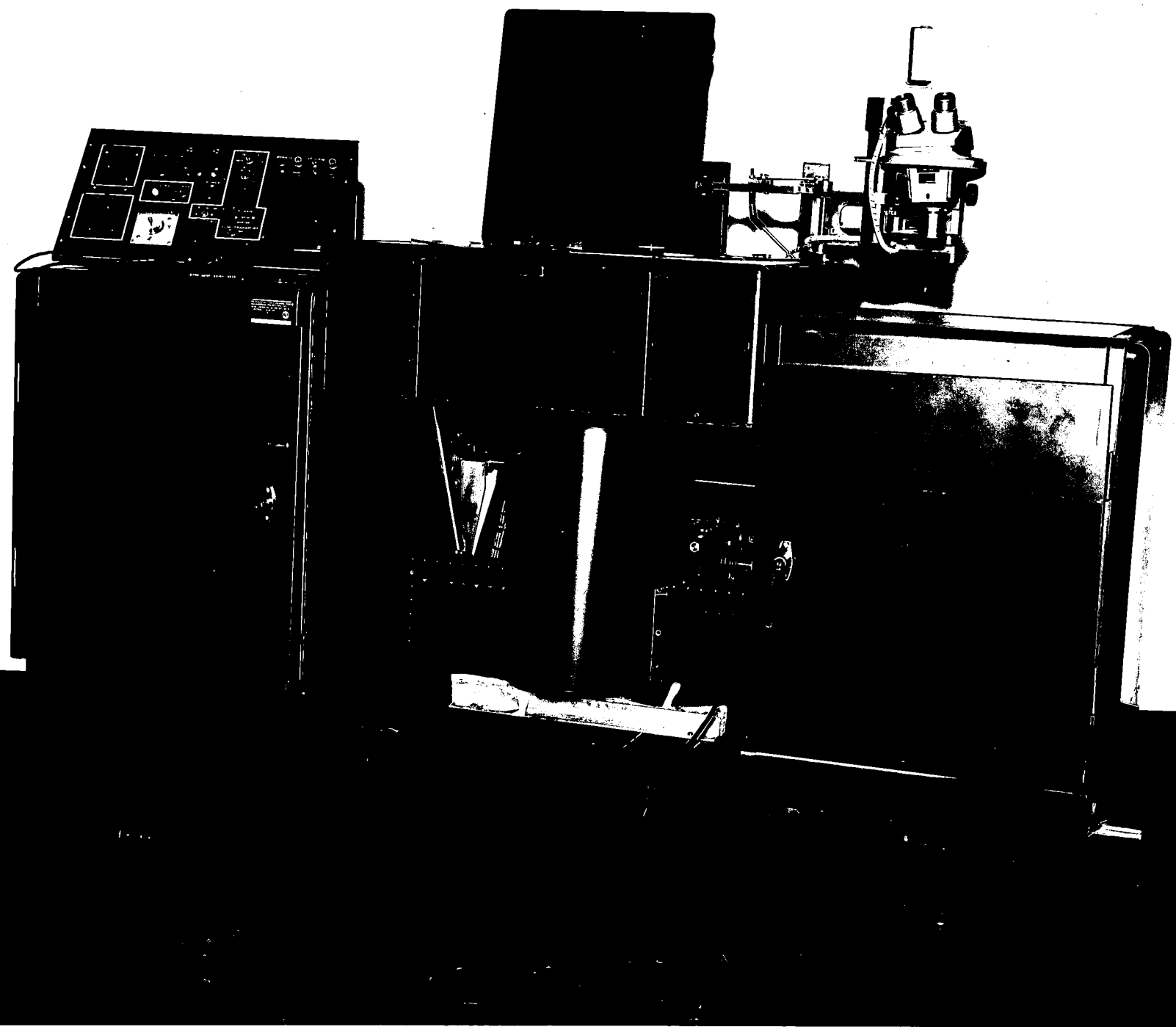
E. Aggravation of Vertical Constraints and/or Accommodations during the Report

1. The following desired table dimensions will be examined: knee height, 28 inches; nominal table height, 30 inches; viewing surface height, 34 inches.
2. The tables will be painted a subdued color (e.g., gray).
3. Complete table movement will be facilitated by the inclusion of furniture rollers.
4. The maximum size of the modulated illumination area (microscope raster) will be 9-1/2 inches x 12 inches. Rounded corners will be permitted in this area because the flat-faced microscope has been approved.
5. The film transport will utilize dynamic braking and incorporate parallel feed (e.g., automatic sewing machine) and manual controls.
6. The minimum film speed should be 1/4 inch per second; the maximum speed, approximately 50 inches per second.
7. The Technical Representative of the Contracting Officer agreed to forward sample film reels as soon as possible.
8. The suggestion by the Technical Representative that he locate a mutually-unsatisfactory microscope was accepted. However, the removable diffuser feature will be still be incorporated into the prototype design and construction.

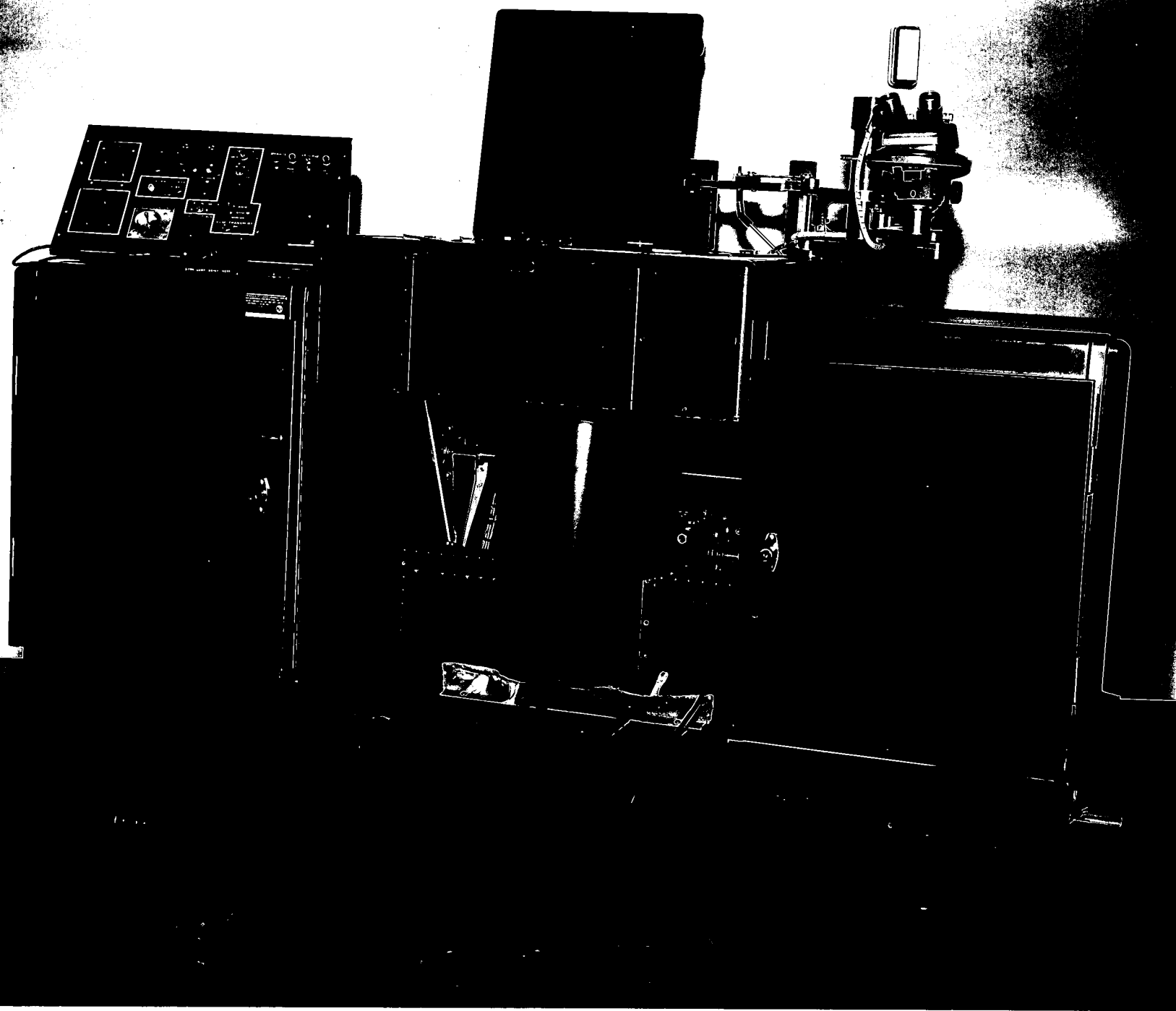
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9. The Technical Representative preferred to forward information on an alternate light pickup and needed action on many occasions. This information was last presented by the first week in August. It was recognized that any further delay in this matter could necessitate delays in the prototype delivery schedule.

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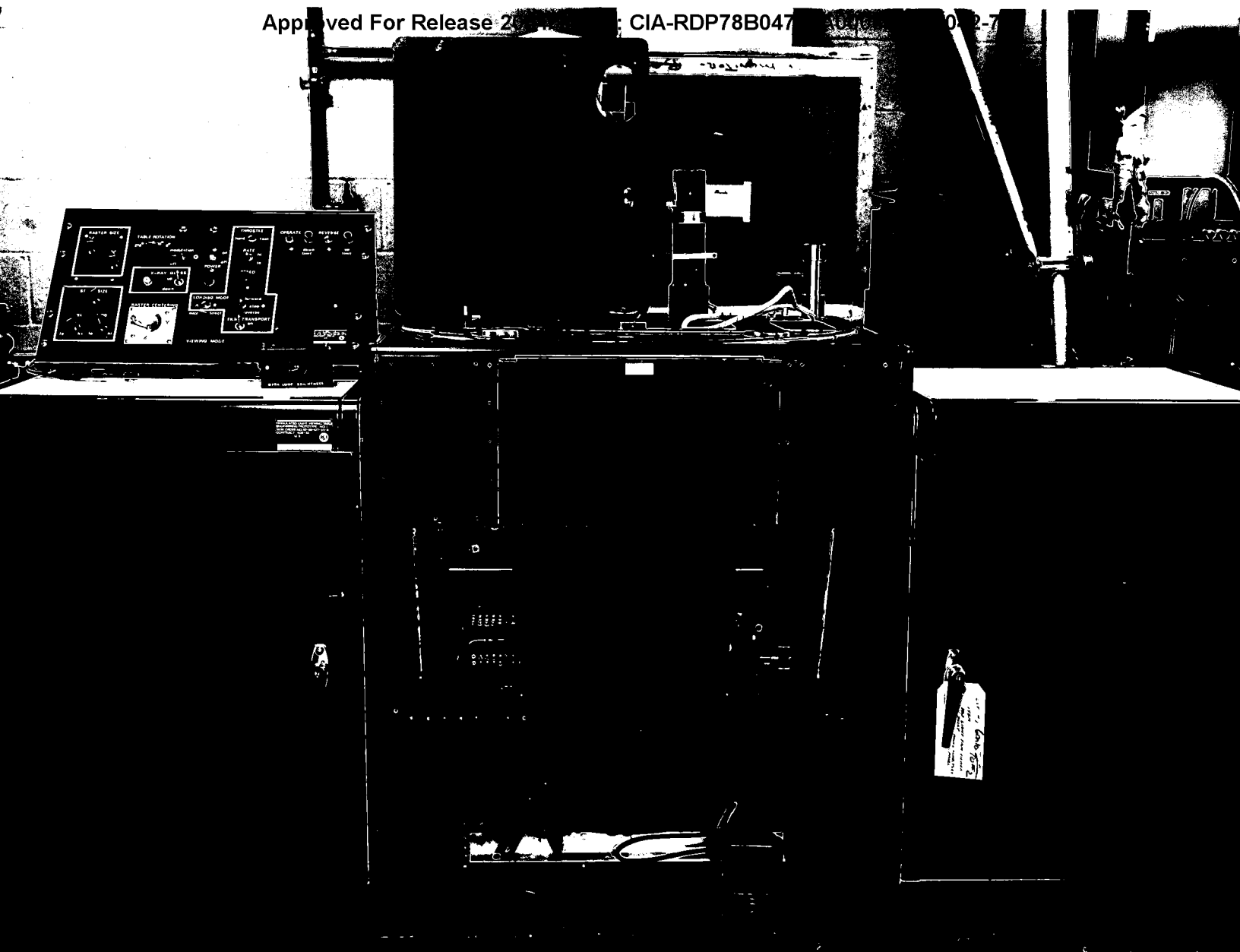


Figure No. 1